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1 [Partial entity structure: a compact non-manifold boundary representation based on partial topological entities](#)

Sang Hun Lee, Kunwoo Lee

May 2001 **Proceedings of the sixth ACM symposium on Solid modeling and applications**

Full text available: pdf(1.06 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Non-manifold boundary representations have gained a great deal of popularity in recent years and various representation schemes have been proposed because they allow an even wider range of objects for various applications than conventional manifold representations. However, since these schemes are mainly interested in describing sufficient adjacency relationships of topological entities, the models represented in these schemes occupy too much storage space redundantly although they are very e ...

Keywords: boundary representation, data structure, geometric modeling, non-manifold, topological entity

2 [Scientific data visualization: a formal introduction to the rendering and geometric modeling aspects](#)

Vincent J. Harrand, Amar Choudry, John P. Ziebarth

October 1990 **Proceedings of the 1990 conference on Supercomputing**

Full text available: pdf(954.51 KB)


Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Rendering and geometric modeling are two basic research areas for scientific data visualization and are also well-known in the established CAD/CAM-world. Several fundamental differences can be pointed out between CAD/CAM and scientific data visualization applications. As a result, a new class of rendering and geometric modeling algorithms especially for scientific data visualization is evolving. Depending on the characteristics of the data available, several complexity levels can be ...

3 [Scientific data visualization: a formal introduction to the rendering and geometric modeling aspects](#)

Vincent J. Harrand, Amar Choudry, John P. Ziebarth

November 1990 **Proceedings of the 1990 ACM/IEEE conference on Supercomputing**

Full text available:  [pdf\(954.51 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

Rendering and geometric modeling are two basic research areas for scientific data visualization and are also well-known in the established CAD/CAM-world. Several fundamental differences can be pointed out between CAD/CAM and scientific data visualization applications. As a result, a new class of rendering and geometric modeling algorithms especially for scientific data visualization is evolving. Depending on the characteristics of the data available, several complexity levels can be distinguished ...

4 [Layout tools for analog ICs and mixed-signal SoCs: a survey](#) 

Rob A. Rutenbar, John M. Cohn


May 2000 **Proceedings of the 2000 international symposium on Physical design**

Full text available:  [pdf\(247.03 KB\)](#) Additional Information: [full citation](#), [references](#)

5 [Engineering Applications: A collaborative framework for integrated part and assembly modeling](#) 

Rafael Bidarra, Niels Kranendonk, Alex Noort, Willem F. Bronsvort

June 2002 **Proceedings of the seventh ACM symposium on Solid modeling and applications**

Full text available:  [pdf\(8.79 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

An ideal product modeling system should support both part modeling and assembly modeling, instead of just either of them as is the case in most current CAD systems. A good basis for such integration is multiple-view feature modeling, as it allows focusing on different aspects of the product, while at the same time maintaining the consistency among all model views. This paper presents a framework that supports synchronous collaborative sessions via the Internet, among members of a distributed dev ...

Keywords: assembly modeling, collaborative design, feature modeling, integrated product modeling, part modeling

6 [Computer graphics in Singapore](#) 

Alain Chesnais, Jose Encarnação, H. Seah, Y. T. Lee

August 1998 **ACM SIGGRAPH Computer Graphics**, Volume 32 Issue 3

Full text available:  [pdf\(1.18 MB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

This issue, we travel to Singapore for an update of this country's computer graphics activities.

7 [Polyhedral modeling](#) 

Georges-Pierre Bonneau, Stefanie Hahmann

October 2000 **Proceedings of the conference on Visualization '00**

Full text available:  [pdf\(2.65 MB\)](#) Additional Information: [full citation](#), [index terms](#)

Keywords: arbitrary topology, triangular meshes, visual continuity, visualization

8 [CAD/CAM - the foundation for Computer Integrated Manufacturing](#) 

Richard L. Simon

June 1983 **Proceedings of the 20th conference on Design automation**


Full text available:  pdf(1.15 MB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

The decade of the 1980's is a critical time for many worldwide manufacturers. Lagging productivity and competition for scarce resources has caused manufacturers to turn to computer technology for help. Computer Integrated Manufacturing (CIM) is considered one of the best means for increasing manufacturing productivity. CAD/CAM is one of the best foundations to build on to achieve the benefits of CIM.

9 [An enhanced data model for CAD/CAM database systems](#)

Ying-Kuei Yang

June 1988 **Proceedings of the 25th ACM/IEEE conference on Design automation**

Full text available:  pdf(669.00 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The record-based conventional data models have been criticized as not powerful enough to model a complex data domain of CAD/CAM. This paper proposes a Semantic Network plus Model (SN+M) as a data model for an integrated CAD/CAM database system. The SN+M basically is a model coupling semantic network capability developed in artificial intelligence and relational tabl ...

10 [Automated design and analysis system for design of custom orthopedic implants](#)

R. L. Dooley, G. Heimke, Aijt Dingankar, E. Berg, E. Kimbrough

June 1988 **Proceedings of the first international conference on Industrial and engineering applications of artificial intelligence and expert systems - Volume 1**

Full text available:  pdf(738.77 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A parametric model for implant design has been developed and incorporated into an expert system for prosthesis design and manufacturing. The expert system acquires data concerning the physical characteristics of a patient. The system conceptualizes a space-filling custom design based upon the available data and calculations. The system considers existing off-the-shelf designs and the custom design as parallel alternatives and applies geometric criteria to eliminate designs that are incompat ...

11 [The emerging technology of CAD/CAM](#)

Larry Lichten

January 1984 **Proceedings of the 1984 annual conference of the ACM on The fifth generation challenge**

Full text available:  pdf(570.62 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Computer-Aided Design and Manufacture (CAD/CAM) represents a merging of technological advances in computer hardware and software with pressing needs in manufacturing industries. Integrated manufacturing systems--from computer graphics-aided design through engineering analysis and automated fabrication--are only now beginning to fulfill nearly twenty-five-year old promises of increased production efficiency. This paper summarizes CAD/CAM's evolution and its current state and then describes s ...

12 [Toward CAM-oriented CAD](#)

Farhad Arbab, Larry Lichten, Michel A. Melkanoff

January 1982 **Proceedings of the 19th conference on Design automation**

Full text available:  pdf(601.81 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A new solid modeling scheme is proposed and developed as the core of an integrated approach to the computer aided design and manufacture of mechanical parts. The benefits of this methodology, which considers the manufacturing process during the design phase, are discussed in the context of an integrated CAD/CAM system.

13 View planning for automated three-dimensional object reconstruction and inspection

William R. Scott, Gerhard Roth, Jean-François Rivest

March 2003 **ACM Computing Surveys (CSUR)**, Volume 35 Issue 1

Full text available: [pdf\(517.25 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Laser scanning range sensors are widely used for high-precision, high-density three-dimensional (3D) reconstruction and inspection of the surface of physical objects. The process typically involves planning a set of views, physically altering the relative object-sensor pose, taking scans, registering the acquired geometric data in a common coordinate frame of reference, and finally integrating range images into a nonredundant model. Efficiencies could be achieved by automating or semiautomating ...

Keywords: View planning, object inspection, object reconstruction, range images

14 The challenge of CAD/CAM education

Michel A. Melkanoff, Frank Puhl, Victor Langer, Donald P. Greenberg, Mark S. Shepard, Herb Voelcker

July 1982 **ACM SIGGRAPH Computer Graphics , Proceedings of the 9th annual conference on Computer graphics and interactive techniques**, Volume 16 Issue 3

Full text available: [pdf\(191.25 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Colleges and universities are not meeting industry needs for graduates trained in the use or implementation of computer-aided design and manufacturing systems since few schools have experience in teaching CAD/CAM. Furthermore, many Bachelor's-level graduates are going directly into industry, rather than pursuing graduate degrees, thereby compounding this problem. Members of this panel represent both schools and industry and together attempt to outline approaches to developing more extensive ...

15 A feature definition language for bridging solids and features

Timo Laakko, Martti Mäntylä

June 1993 **Proceedings on the second ACM symposium on Solid modeling and applications**

Full text available: [pdf\(912.51 KB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

16 Columns: Computer graphics around the world: graphics research at National Centre for Software Technology in India

S. P. Mudur, S. Gopalsamy, Dinesh Shikhare, D. S. Dixit, B. S. Patwardhan, N. S. Nayak, S. V. Shanbhag

February 1999 **ACM SIGGRAPH Computer Graphics**, Volume 33 Issue 1

Full text available: [pdf\(1.37 MB\)](#) Additional Information: [full citation](#), [abstract](#)

The National Centre for Software Technology is an autonomous research and development institution of the government of India. It is a centre for excellence in software technology and related computer science areas. It carries out research in a number of disciplines such as databases and knowledge engineering, artificial intelligence, computer networking and Internet, software engineering and graphics and CAD. The graphics and CAD division of the centre has been active in this field since the earl ...

17 A hybrid CAD/CAM system for mechanical applications

J. Z. Gingerich, M. P. Carroll, E. J. Chelius, L. P. Kuan

January 1982 **Proceedings of the 19th conference on Design automation**


Full text available: [pdf\(499.15 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The current wire frame and surface modeling based CAD/CAM systems provide productive tools for the mechanical manufacturing industries. Volumetric modeling, distributed processing, 3-dimensional graphic displays, relational data bases, and less expensive, more powerful computers are emerging technologies sure to benefit CAD/CAM applications. The challenge of the 80's is to integrate the proven CAD/CAM techniques of the 70's with these emerging technologies. This paper addresses the issues i ...

18 "Modeling Primitives": an object oriented formulation of boundary value problems in a solid geometric modeling context

Taylor C. Wilson, Jeffrey A. Talbert, Jordan J. Cox


June 1993 **Proceedings on the second ACM symposium on Solid modeling and applications**

Full text available:  [pdf\(769.97 KB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

19 Ramifications of CAD/CAM on the automotive supplier community (Panel Session)

Wayne Hamann

July 1983 **ACM SIGGRAPH Computer Graphics , Proceedings of the 10th annual conference on Computer graphics and interactive techniques**, Volume 17 Issue 3

Full text available:  [pdf\(169.41 KB\)](#) Additional Information: [full citation](#), [index terms](#)

20 A CAD/CAM system based upon the iAPX 432

Donald J. Criscione

December 1983 **Proceedings of the 1983 ACM SIGSMALL symposium on Personal and small computers**

Full text available:  [pdf\(596.93 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)





The Intel corporation has developed a 32 bit micro-processor which provides hardware support for object oriented applications, accommodates concurrent processing in a manner invisible to the user, and allows easy interfacing to peripherals. These features, along with numerous others that have never been offered before in a micro-processor, makes the iAPX 432 an attractive base for CAD/CAM. This paper outlines one possible implementation of a CAD/CAM system with the 432 at its heart. The adv ...

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Integration CAD/CAM/CAE system for production all terrain vehicle manufactured with composite materials

Source [Proceedings of the fourth international conference on Advanced manufacturing systems and technology](#) [table of contents](#)

Udine, Italy

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Authors [G. Vrtanoski](#)
[Lj. Dudeski](#)
[V. Dukovski](#)

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